

AMENDMENTS IN THE CLAIMS

Please amend the claims as follows:

1. (currently amended) A system for transmitting data over a wireless channel of a GPRS/EDGE communication network, said system comprising:

a Trellis coder incorporated within a general packet radio services (GPRS)-~~enabled~~configured terminal/device between an input/origination point for data being transmitted and an interleaving mechanism within a data transmission channel, wherein said trellis coder specifically encodes said data to substantially eliminate fading on the transmission channel and increase capacity on an allocated bandwidth by providing a maximum Euclidian distance between words of said data during encoding, which distance substantially reduces signal power required for transmitting said data over a wireless channel;

a quadrature amplitude modulator that modulates said encoded data to increase a number of simultaneous transmissions within an allocated bandwidth, wherein Trellis Coded Modulation (TCM) is provided over Quadrature Amplitude Modulation (QAM) during a coding sequence;  
and

a wireless transmitter that transmits said encoded data over said wireless channel.

2. (canceled)

3. (original) The system of Claim 1, further comprising a digital converter that converts said data into radio waves to enable wireless transmission.

4. (previously presented) The system of Claim 3, wherein said Trellis coder includes both a Trellis encoder and a Trellis decoder that decodes encoded data received from a next system across said wireless channel.

5. (original) The system of Claim 3, wherein said Trellis coder is a Trellis encoder, said system further comprising a Trellis decoder that decodes encoded data received from a next system across said wireless channel.

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6. (original) The system of Claim 3, wherein said Trellis coder is located on an integrated circuit within a wireless component.
7. (original) The system of Claim 6, wherein said wireless component is a voice communication device and said Trellis coder further encodes and decodes voice communication.
8. (currently amended) The system of Claim 1, wherein said wireless channel operates via Traffic Channel/Full Rate (TCH/F) to provide said data at a highest possible speed and capacity utilizing Trellis coding over the air link packet data traffic channel (PDTCH).
9. (currently amended) A GPRS/EDGE network for wireless transmission comprising:  
a data transmission station and a data receiving station;  
wherein said data transmission station including a wireless transmitter and said data receiving station including a wireless receiver;  
wherein said data transmission station comprises a Trellis encoder incorporated within a general packet radio services (GPRS)-enabled configured terminal/device between an input/origination point for data being transmitted and an interleaving mechanism within a data transmission channel, wherein said trellis coder (1) encodes data being transmitted to substantially eliminate fading on a transmission channel between said data transmission and data receiving stations, (2) reduces signal power required for transmission of said data, and (3) increases capacity on an allocated bandwidth by providing a maximum Euclidian distance between words of said data during encoding, which distance substantially reduces signal power required for transmitting said data over a wireless channel.
10. (original) The GPRS/EDGE network of Claim 9, wherein said data receiving station comprises a Trellis decoder that decodes said encoded data.
11. (previously presented) The GPRS/EDGE network of Claim 10, wherein said data transmission station comprises a quadrature amplitude modulator that modulates said encoded data to increase a number of simultaneous transmissions within said allocated bandwidth,

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wherein Trellis Coded Modulation (TCM) is provided over Quadrature Amplitude Modulation (QAM) during a coding sequence.

12. (original) The GPRS/EDGE network of Claim 9, wherein said data transmission station is a mobile station.

13. (original) The GPRS/EDGE network of Claim 12, wherein said Trellis encoder is located on an integrated circuit within said mobile station.

14. (original) The GPRS/EDGE network of Claim 13, wherein said data is voice data.

15. (currently amended) In a GPRS-enabled configured device, a method for implementing Trellis coding for wireless network transmissions, said method comprising the steps of:

receiving data for transmission over a wireless link of a GPRS/EDGE wireless network;

evaluating a maximum Euclidian distance between code words of said data to reduce signal power requirements;

minimizing fading channel effects with transmission of said code words;

encoding said data utilizing results of said evaluating and minimizing steps;

modulating said encoded data utilizing quadrature amplitude modulation (QAM) to increase a number of simultaneous transmissions within an available bandwidth, wherein Trellis Coded Modulation (TCM) is provided over Quadrature Amplitude Modulation (QAM) during a coding sequence; and

transmitting said encoded data over said wireless link.

16. (canceled)

17. (original) The method of Claim 15, further comprising the step of decoding said Trellis encoded data received via said wireless air link.

18. (currently amended) A computer program product comprising:  
a computer readable medium; and

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program instructions on said computer readable medium for:  
receiving data for transmission over a wireless link of a GPRS/EDGE wireless network;  
evaluating a maximum Euclidian distance between code words of said data to reduce  
signal power requirements;  
minimizing fading channel effects with transmission of said code words;  
encoding said data utilizing results of said evaluating and minimizing steps;  
modulating said encoded data utilizing quadrature amplitude modulation that increases a  
number of simultaneous transmissions within an available bandwidth, wherein Trellis Coded  
Modulation (TCM) is provided over Quadrature Amplitude Modulation (QAM) during a coding  
sequence; and  
transmitting said encoded data over said wireless link.

19. (canceled)

20. (currently amended) A device for providing data transmission over a wireless air link in  
GPRS/EDGE networks, said device comprising:

a Trellis encoder designed to mitigate fading within transmission channels and which  
encodes data at a transmission origination point for transmission over a wireless air link utilizing,  
wherein said Trellis encoder maximizes an Euclidean distance between neighboring words of  
said data to reduce signal power required for transmission of said data;

a quadrature amplitude modulator for modulating said encoded data utilizing Quadrature  
Amplitude Modulation (QAM) to increase capacity and data rates within an available bandwidth,  
wherein Trellis coded modulation is provided on top of said QAM during a coding sequence; and

a Trellis decoder that decodes radio wave signals received from said wireless air link,  
wherein channel fading due to said wireless air link is substantially reduced.

21-22. (canceled)

23. (currently amended) The device of Claim [[22]] 20, wherein said Trellis encoder  
utilizes Amplitude Phase Modulation to form constellation lattices in a signaling space.

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